IMPLEMENTING ADEQ'S NONPOINT SOURCE 5-YEAR PLAN

State Fiscal Year 2018 Annual Report

ADEQ Arizona Department of Environmental Quality

DEVELOPED BY THE ADEQ WATER QUALITY DIVISION // SURFACE WATER SECTION // WATERSHED PROTECTION UNIT

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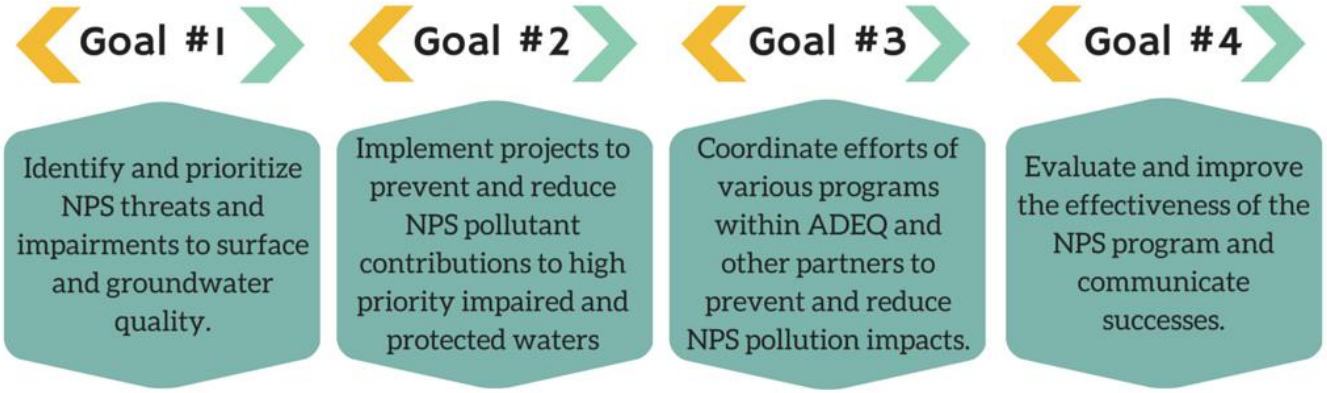
STRATEGIC PLANNING FOR MEETING WATER QUALITY PROTECTION AND RESTORATION GOALS RELATED TO NONPOINT SOURCE POLLUTION.

I. Introduction

The Arizona Nonpoint Source (NPS) Annual Report for state fiscal year 2018 (FY18) summarizes Arizona Department of Environmental Quality (ADEQ) NPS Program activities that occurred between July 1, 2017 and June 30, 2018. The state's FY18 Work Plan Output Report, submitted to EPA in August 2018, also documents FY18 NPS-funded activities and is a companion document to this report.

The majority of work performed by ADEQ's NPS Program is funded by Clean Water Act Section 319(h) grant monies, awarded by the U.S. Environmental Protection Agency (EPA). Section 319(h) (11) requires states to report annually on progress in meeting the schedule of milestones contained in their Nonpoint Source Management Plans. It also requires, to the extent possible, nonpoint source pollutant loading reductions and improvements in water quality resulting from program implementation. For more information about Arizona's NPS Program's goals and structure for the FY15-19 reporting period, refer to the FY15-FY19 5-Year Plan.

The FY15-19 NPS 5-Year Plan has four broad goals, summarized below:



The NPS-funded activities of each fiscal year within the five-year planning horizon must move ADEQ closer toward achieving these goals. The Strategic Plan Update Table (Section III of this document) details FY18 strides towards meeting these goals, and indicates whether they are on track for completion.

II. Executive Summary: A Snapshot of Our Progress

To make this report as useful as possible as an evaluation tool for EPA and a planning tool for ADEQ, each milestone in the Strategic Plan Update Table was evaluated based on whether it was on track for the *given year* and whether it was on track for the *overall 5-year planning period*. This allows staff to identify when additional resources may be needed to keep a milestone on track over a period of several years, and plan accordingly for the following fiscal year.

Milestone updates provide status information *for the given reporting year*. Milestones are identified as either "not applicable" (no activity for the reporting year), "not initiated" (activity was planned but did not occur in the reporting year), "in progress" (activity took place in the reporting year and will be completed in a later year, or the task recurs each fiscal year), or "complete" (task is fully completed for the entire 5-year planning horizon).

In addition, status updates are color-coded to denote whether they are on track relative to the *overall 5-year planning period.* Milestones are identified as either on track ( ), at risk of falling off track ( ) or off track ( ).

The yellow, or "at risk" status update indicates that while the task may currently be on track (or is not yet due to have been initiated), ADEQ is aware of issues that could threaten the ability of the project to stay on track.

ADEQ was successful in staying on track with 87% of the milestones established in the 5-year plan during state FY18. Of that 87%, 7% were identified as at risk for falling behind schedule in coming years if additional focus and/or resources are not applied. Only 13% of all milestones were considered "off track" at the end of FY18.

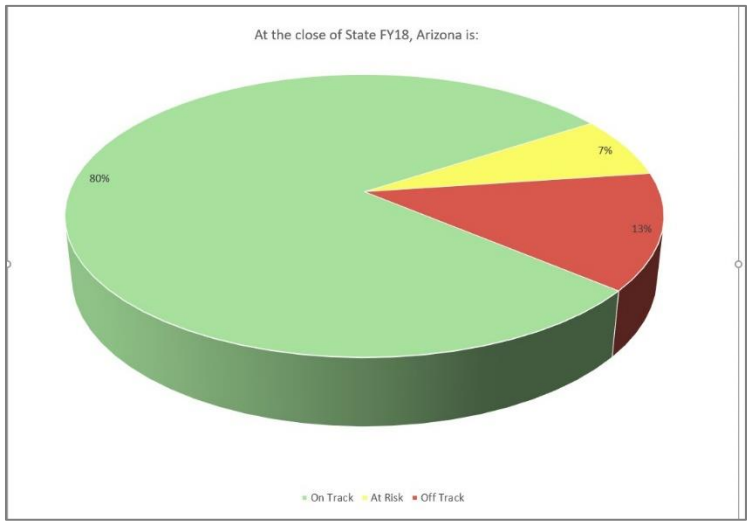


Figure 1 – FY18 ADEQ Progress

Some highlights from FY18 include:

- Since the Citizen Science coordinator was hired last year, the Arizona Water Watch program was developed and is flourishing in all corners of the state. Over 25 groups have been trained, ~6000 water quality data records collected, ~400 app observations submitted by the public, expanded the volunteer program to include citizen science HABS (algal blooms and fish kill observations) and Wet/Dry Mapping. Additional information about the program can be found at azdeq.gov/azww. The app can be downloaded at azdeq.gov/WaterApp.

Figure 2 – Arizona Water Watch pairs with Coconino USFS and Friends of the Forest

- Water and other environmental data records have been collected and submitted to ADEQ by twenty-five volunteer groups around the state to assist in filling water quality data gaps for a complete scientific picture of water quality health.
- Water Quality grants staff awarded three preservation grants, the first of its kind, for Cycle 20.
- Continue to work with and improve the on-the-ground coordination of funds and priority sites with the Arizona Game and Fish Department.

- Pre- and post-treatment effectiveness monitoring and evaluations were carried out by staff and grantees where applicable on BMPs of several types: low- and high-input erosion control structures, sediment retention basins, flood detention basins, bank sloping, rangeland seeding, livestock waters and pipelines, and grassland restoration efforts. BMP evaluations employed greater use of technology, automated data collection and summary, and modeling to quantify and estimate pollutant load reductions.
- Remote Environmental Monitor (REM) technology has played an increasing role in capturing flashy water events and water availability that otherwise would not be captured. ADEQ staff who have researched, devised, installed, and trouble shoot in the field have overcome a huge obstacle to collection water quality data and save money at the same time. For example, a REM was installed at an outfall culvert of the retention basin project at Horseshow Draw that contributes sediment to the *E. coli* impaired San Pedro River. The REM captures water quality data in response to stormflows in real time through satellite networks.

Figure 3 – Remote Environmental Monitoring equipment installed above a culvert at Horseshoe Draw grant project site.

- Watershed Protection Unit staff participated in the second year in the Arizona Conservation Partnership with other state and federal land management agencies.
- The FY18 goal was to reduce the Number of Impaired Waters from 144 to 100. That goal was not met but prompted us to develop and implement a watershed based team approach to identify priority projects that will help improve water quality.

III. Strategic Plan Update Table

GOAL #1: Identify and prioritize NPS threats and impairments to surface and groundwater quality		
Objective a: Assess water quality of surface and groundwater.		
Strategy i: Conduct statewide surface and groundwater monitoring according to ADEQ's monitoring strategy and analyze data to fulfill requirements of the Clean Water Act and state water statutes.		
Milestones:		
1. Identify potential NPS contributions to surface and groundwater.		
Submit Integrated 305(b)/303(d) Report and assessment database to EPA.	(FY16, 18)	Complete
Comments		
The Integrated Report was submitted to EPA on December 15, 2016, and the database was submitted later in December. There has been a delay in receiving approval from EPA, and due to questions about the Unnamed Tributaries to Queen Creek, EPA headquarters decided to review it as well. The current tentative approval date in August 2017. Update - The FY18 303(d) list will be submitted 8/15/18. The 305(b) was not submitted as the assessment calculator is still in progress.		
2. Increase probabilistic monitoring on intermittent streams.		
a. Program development.	(FY15, 16)	Complete
b. Increased monitoring of intermittent streams (25 sites).	(FY17, 18, 19)	In Progress
Comments		
a. Pilot testing of flow sensors on known intermittent streams was completed Nov 2014. Randomized network of flow sensors and intermittent stream target population and map development was completed March 2015.		

b. 22 intermittent stream sites were sampled in FY16. By the end of the first equipment deployment, 17 cameras remained due to issues with vandalism of cameras. In order to try to hit the targeted 40 sites for the 2-year study, 24 sites were selected for FY17 but by the end of FY17, 19 remained. The study continues in FY18 with 20 sites selected - FY18 is a targeted approach to sampling with some repeat sites from FY16 and FY17. Update - Probabilistic sampling completed in FY17. Final report to be submitted to EPA in FY19 Q1.

3. Increased monitoring on recreational waters

a. Monitoring plan development.	(FY15)	Complete
b. Begin monitoring of highly recreated waters (both lakes and streams; 10 sites/year).	(Start FY16, con. annually)	Not initiated

Comments

a. Developed proposed list of recreational monitoring sites, which includes a total of 30 waters spread throughout the state. There is another list focusing on HABs sites.

b. ADEQ's recreational monitoring was proposed internally during FY16, but was put on hold due to resource limitations and the need for increased coordination with partner agencies and landowners of recreational sites. Staff are continuing to work on program development with a proposed launch in late FY17. Recreational monitoring for E. coli and HABs was proposed in FY17. It was declined until more development is completed. After ambient lake sampling detected cyanobacteria above the proposed EPA level, additional sampling at highly recreated areas on Lake Havasu was conducted the following week, showing levels had dropped below the proposed EPA action level.
Update - COMPLETED - AWW Partnered with local entities and agencies to monitor and institute best management practices. For example, Forest Service personnel are removing sources of fecal coliform from the Butcher Jones Beach at Saguaro lake.

Responsible Parties: Grants & Outreach Program, TMDL & Assessments Program, Ambient Monitoring Program, contracted entities as identified

Strategy ii: Develop, revise, and implement water quality standards to support water quality assessments and identification of impairments, sources, and key projects.

Milestones:

1. Water quality standards developed or revised in accord with the Triennial Review Process. *	(FY17)	In Progress

Comments

ADEQ kicked-off the 2017 Triennial Review on June 21, 2017 when we hosted an in-person and webinar based stakeholder meeting. Over 50 stakeholders attended. Input from stakeholders was solicited, recorded and This rulemaking will be a full review of Title 18, Chapter 11, Article 1. The proposed timeline has ADEQ drafting a proposed rule in early 2018 and publishing the proposed rule at the end of FY18. Update - Proceeding as planned. Should be completed by the end of FY19.

2. Arizona's Impaired Water Identification Rule is revised to incorporate new water quality standards and better reflect EPA's impaired waters listing guidance. *	(FY17)	In Progress

Comments

ADEQ's rulemaking exemption request to the Governor's office to update the Title 18, Chapter 11, Article 6 (IWIR) is still being drafted.

**Note: These milestones may be delayed due to state agency rules moratorium. See annual work plans for updates.*

Responsible Parties: Ambient Monitoring Program, TMDL & Assessments Program, Standards and Rule Development Program

Objective b: Prioritize resources toward high-priority waters for both restoration and protection activities.

Strategy i: Prioritize impaired waters for restoration activities and resources.

Milestones:

1. High priority (Targeted and/or MTL) watersheds are identified for directing resources such as 319(h) grant resources, monitoring, education and outreach, and potential legal authorities.	(Annually)	In Progress

Comments

No changes were made to the Targeted Watersheds for FY17. The Master Target List (MTL) was updated to capture additional waters where improvement activities have taken or are expected to take place, and to separate out individual waterbody/pollutant combinations. Update - The MTL is now called the Priority Waters List and currently stands at 99 individual waterbody/pollutant combinations. The agency performance measure that the MTL list information was changed in FY19 and the MTL will no longer be used. The new agency performance measures will focus on reducing the number of impaired waters and parameters. The FY19 targets are 129 and 226 respectively.

a) Integrated Report identifies priority watersheds or waters for restoration and protection to facilitate State strategic planning for achieving water quality goals.	(FY16, FY18)	In Progress

Comments

~~The 2016 Integrated Report is not yet finalized but priority waters have been identified.~~
Update - The public comment and notice periods for the 2018 303(d) list were completed in FY18 Q4. The list will be submitted to EPA in FY19 Q1 for approval

2. As new watersheds are identified, integrated teams including internal and external partners are created for each to identify resources and potential legal and implementation actions.	(Annually/as needed)	In Progress

Comments

ADEQ partnered with Arizona Game and Fish Department (AGFD) to fund restoration projects in areas of mutual interest that have benefits to water quality and wildlife. Since ADEQ hired a Citizen Science Coordinator, there has been an increase in external groups and individuals interested in assisting with water quality sampling across the state. U of A and ADEQ have trained over 100 individuals in 10 watersheds. ADEQ also began involvement in the Arizona Conservation Partnership with other state and federal agencies.
Update - Roughly 45 trainings and field audits occurred. In 2017 over 6,000 water quality data records were collected by volunteers. Additionally ADEQ released an app for volunteers to submit flow data and photos.

3. Internal programs develop common goals for addressing point and nonpoint source concerns in priority watersheds.

a. NPS, Stormwater, and Compliance programs identify shared goals and strategies for the Granite Creek watershed.	(FY15)	Complete*

Comments

The Watershed Protection Unit will continue to solicit and award projects in the Granite Creek watershed to reduce NPS pollution sources. Stormwater staff will be included on technical reviews for any projects located within the MS4 boundaries to determine eligibility. Stormwater and Compliance staff will continue to be used as the primary tools to address point source discharges and permit violations. **Although the milestone date for this task was listed as FY15 and it is administratively considered complete, ADEQ will continue to provide updates as appropriate on a yearly basis.*

b. NPS, Stormwater, and Compliance programs identify shared goals and strategies for the Oak Creek watershed.	(FY15)	Complete*

Comments

The Watershed Protection Unit will continue to solicit and award projects in the Oak Creek watershed to reduce NPS pollution sources. Stormwater staff will be included on technical reviews for any projects located within the MS4 boundaries to determine eligibility. Stormwater and Compliance staff will continue to be used as the primary tools to address point source discharges and permit violations. **Although the milestone date for this task was listed as FY15 and is it administratively considered complete, ADEQ will continue to provide updates as appropriate on a yearly basis.*

Responsible Parties: Grants & Outreach Program, TMDL & Assessments Program, Stormwater & General Permits Program, APP Program, Compliance Program, other programs as identified

Strategy ii: Develop criteria to identify and prioritize high quality or threatened waters for protection activities.

Milestones:

1. Develop criteria for identifying high-priority protection waters. (FY15) Complete

Comments

Protection criteria draft documentation was reviewed internally and sent to EPA for review. A webinar discussing Protection Criteria document and mapping by ADED for EPA was held in October 2017. Watershed Preservation grants were solicited in Cycle 20 RFGA - out on June 30, 2017.

2. Identify protection planning priorities and approaches. (FY16) Complete

Comments

2 Preservation Projects were awarded in Cycle 20, and ADEQ received more applications in Cycle 21

3. Develop outreach materials to educate the public about protection-prioritized watersheds. (FY17) Complete

Comments

Watershed Preservation grants will be part of Cycle 20 - RFGA released 6/30/17, award planned for September 2017. A webinar to introduce the Watershed Preservation Grants was held for potential grantees on 6/16/17. Preservation Grants are highlighted in webinars.

Responsible Parties: Grants & Outreach Program, TMDL & Assessments Program, Ambient Monitoring Program, NPS grantees (e.g. University of Arizona), other programs as identified

Objective c: Identify critical pollutant sources and implementation activities needed to meet and/or maintain water quality standards in impaired and protected waters.

Strategy i: Complete in-progress traditional TMDLs to determine sources and load allocations.

Milestones:

1. Granite Creek - low D.O., *E. Coli* (includes Miller, Butte, and Manzanita Creek tributaries - *E. coli*); Watson Lake (nutrients)	(FY15)	Complete

Comments

Granite Creek TMDL- The response to comments and TMDL summary was published to the A.A.R for public notice on September 25, 2015 and a 45- day public notice which ended November 6, 2015. TMDL documents were sent to EPA Region 9 for review on December 4, 2015. EPA approved the TMDL in May 2016.
Watson Lake TMDL- The response to comments and TMDL summary were published in the A.A.R. on March 6, 2015. The 45 day notice period ended on April 22, 2015. The City of Prescott formally appealed the TMDL in May 2015. Negotiation for settlement occurred on June 16, 2015. The Settlement Agreement was signed on November 6, 2015 and order vacating hearing on November 12, 2015. The TMDL and supporting documents were sent to EPA Region 9 for review on December 4, 2015. EPA approved the TMDL in May 2016.

2. Queen Creek - copper, lead	(FY16)	In Progress

Comments

Draft sent to EPA for informal review in February, extended reviews and revisions have caused delays. Also, the Assessment has not been approved and there was little guidance on whether to include the unnamed tributaries in the TMDL or not. The TMDL went out for public comment in October with 2 public meetings. Questions about the modeling have put the TMDL on hold until ADEQ finds money to address the concerns.
Update - The draft TMDL was released for public comment in Fall 2017. Comments were received from five entities. Resolution Copper questioned several aspects of the water quality model that will require an ADEQ contractor to re-evaluate several modeling assumptions and approaches prior to moving forward with finalizing the TMDL. This model rerun will not occur before FY19 Q3 due to budget constraints and waters of the United States concerns.

3.	Mule Gulch - copper	(FY16)	In Progress

Comments

Two storm events were sampled in FY17. Each showed dissolved copper exceeding applicable surface water quality standards but no exceedances of the previous listed metals or pH. An ADOT storm drain was identified as contributing flow and additional copper to Mule Gulch. The issue was addressed through ADOT's MS4 permit. Additional equipment was installed in FY17 and samples will be collected throughout FY18 to determine current conditions and whether a TMDL will still be required. Update - ADOT completed improvements to their storm drains that were impacting Mule Gulch. Storm water no longer comes into contact with mineralized material prior to entering Mule Gulch. ADEQ is continuing to collect storm flow data to determine the current Mule Gulch water quality. Aging auto samplers were replaced with newer equipment in hopes of increasing successful sampling events.

4.	East Verde River - arsenic	(FY15)	Complete

Comments

It was determined that the arsenic exceedances in the East Verde river can be attributed to natural conditions and sampling of pooled, stagnant water in the original listing dataset. An arsenic delist report was completed in Q3 FY15.

5.	Middle Gila - selenium, boron	(FY15)	Complete

Comments

EPA approved the TMDLs for selenium and boron on the Middle Gila River on December 23, 2015.

6.	Lower Gila - selenium (potential delist), boron	(FY15)	Complete

Comments

The originally listed reach was split in 2012 based on changes in the hydrologic flow regime. The upper segment is evaluated as attaining for selenium standards, but inconclusive for boron. Further monitoring of the upper segment under representative flow conditions is recommended due to the small size of the TMDL data set in the upper segment. A delist report for both selenium and boron in the upper segment was completed in Q1 FY15.

Responsible Parties: TMDL & Assessments Program

Strategy ii: Develop comprehensive watershed plans that incorporate TMDLs and create clear paths to pollutant reduction and restoration of water quality and watershed health.

Milestones:

1.	Santa Cruz River watershed plan:		
	a. Initiate local stakeholder involvement.	(FY14)	Complete

b.	Complete data collection phase.	(FY15)	Complete
c.	Complete data analysis phase.	(FY16)	Complete
d.	Identify priority projects and complete draft plan.	(FY16)	Complete
e.	Submit final plan to EPA for approval.	(FY17)	In progress

Comments

Update - Volunteers in the watershed worked with ADEQ and U of A to conduct land surveys to identify potential projects in the subwatersheds. The results were compiled and presented to the volunteers. Additional training was provided to keep stakeholders/volunteers engaged. Tetra Tech had submitted a draft of their assigned chapters for ADEQ/EPA review. ADEQ held public meeting for the Santa Cruz Plan. The Clean Water Plan is now out for public comment until January 31, 2019.

2.	Identify watershed(s) for future plan development.	(FY16)	In progress

Comments

ADEQ is updating and expanding the San Pedro WIP to include additional impaired/contributing reaches, and will perform reach-specific TMDL analysis to better inform implementation decisions in the reaches of the San Pedro River from the Mexico border north to Dragoon Wash. In addition, the Granite Creek WIP was updated to include the Miller Creek sub watershed and revisions are currently underway. Equipment and supplies were purchased to expand ADEQ's Citizen Science water quality monitoring program and groups in 10 watersheds have been trained by ADEQ and U of A.
Update - Citizen Science continues to expand training opportunities and data collection continued on the San Pedro WIP project. ADEQ will re-evaluate the need for the WIP in FY19 as we transition to priority watersheds.

Responsible Parties: Grants & Outreach Program, TMDL & Assessments Program, OBEP, NPS grantees (e.g. University of Arizona)

Strategy iii: Update existing WIPs; create framework for future updates.

Milestones:

1.	Update existing WIPs to include analysis of how individual projects relate to the overall load reductions necessary for standards attainment and indicate projects that have been completed (Granite, Oak, San Fran/Blue, San Pedro).	(1/year)	In progress

Comments

Granite Creek WIP - ADEQ and U of A worked collaboratively to train over 100 individuals from 12 different groups in 10 watersheds. While the completion of one plan each year may not be realistic when plan updates require additional data collection, ADEQ will continue to work on completing existing and new plans in shorter timelines without sacrificing local involvement and buy-in. Update - ADEQ updated the Granite Creek WIP and began revisions, but has been slow to complete due to lack of resources on both ADEQ and stakeholders in the watershed. The Upper San Pedro Clean Water Plan update was delayed due to resource issues.
Oak Creek load reduction analysis will take place in FY19 as part of ADEQ's Priority Watershed Team approach.

2. Develop and implement a schedule and process for reviewing and updating watershed plans.	(FY15)	In Progress

Comments

A formal schedule has not yet been developed for ongoing plan updates. In FY18, the Watershed Protection Unit will begin to develop a formal standardized process for reviewing and updating watershed plans.
Update - The San Pedro and Oak Creek WIP's were not actively worked on in FY18. Both watersheds are now priority watersheds, where the focus is on identifying and implementing projects to improve water quality. Future WIP needs will be evaluated in FY19.

Responsible Parties: Grants & Outreach Program, TMDL & Assessments Program, NPS grantees (e.g. University of Arizona)

Strategy iv: Pursue alternative restoration approaches for situations when a full "9 Key Element" plan may not be necessary to address a pollutant source.

Milestones:

1. Complete focused TMDLs/data summaries for work plan-identified watersheds where alternative funding sources are available to address sources of pollution.

a. Big Bug	(FY15)	Complete
b. Additional projects as identified in annual work plans.	(ongoing)	In Progress

Comments

a.) Big Bug Data Summary was completed in January 2016 and shared with USFS. USFS completed remedial activities of three mines in the watershed in FY16. Effectiveness monitoring is scheduled to begin early FY18 to show improvements due to mine remediation. A wildfire in the watershed may affect the current timeline.

2. Submit list of watersheds to EPA where alternative planning documents (for protection projects and other situations as outlined in the EPA Guidelines) may be used to justify use of NPS funding for project implementation.	(FY17)	In Progress

a. Develop alternative planning documents for work plan-identified watersheds.	(See Work Plan)	Not Applicable
b. Implement alternative plans as prioritized by annual work plans.	(See Work Plan)	Not Applicable

Comments

ADEQ developed criteria for funding Protection projects and submitted to EPA in FY16. ADEQ adopted and improved WaterScape to identify HUC12 watersheds that were high risk and high priority for preservation projects; and can be used for improvement projects. Cycle 20 will include funding for Watershed Preservation Grants - expanding where NPS funds are used. All impaired/not attaining waters will be prioritized to determine plan updates/development and funding areas.
Update - Preservation grant awards were issued to three grantees in three different watersheds in FY18.

Responsible Parties: Grants & Outreach Program, TMDL & Assessments Program, NPS grantees (e.g. University of Arizona)

GOAL #2: Implement projects to prevent and reduce NPS pollutant contributions to high priority impaired and protected waters.

Objective a: Implement projects to address impairments in Targeted Watersheds.

Strategy i: Implement **Granite Creek** WIP

Milestones:

1. Complete implementation of Whipple Street Detention Basin and Prescott Community Center projects.	(FY15)	Complete

Comments

Project closed on June 30, 2015. Tasks carried out during this project include public involvement and planning through WIC meetings, general public meetings, and boots-on-the ground BMP installation at two large rain gardens and a retention basin as part of a green infrastructure plan to keep *E. coli* from reaching Granite Creek. Water quality monitoring is ongoing at select sites in the Granite Creek watershed above and below the rain gardens and retention basin by ADEQ and Prescott Creeks Association staff.

2. Identify projects to pursue funding.	(Annually)	Ongoing

Comments

The need for additional manure management, green infrastructure, and urban agriculture BMPs in the Miller Creek sub watershed was identified as part of the WIP update. ADEQ and U of A continue to stay engaged with Prescott Creeks, Prescott College, etc. in order to continue to encourage project application. There is also increased volunteer sampling in the watershed.
Update - During FY18, a grant was awarded to Prescott Creek Preservation Association as cited in the WIP Plan.

3. Implement at least one project per grant cycle as funding and competitive project scoring allows.	(See NPS Annual Report)	Ongoing

Comments

The Slaughterhouse Gulch grant from Cycle 18 was revoked by ADEQ due to concerns about budget, project timeline, and milestones - further planning was suggested with the intent to reapply. No applications were received in Cycle 19. Prescott Creeks is planning to apply in Cycle 20. In March 2017, ADEQ and U of A contracted with Environmental Canine Services to conduct K9 testing of Miller Creek to identify sources of human fecal matter.
Update - Prescott Creeks submitted for and received a 319 grant to install a restroom near a well-traveled public trail bordering Miller Creek. Surface water quality sampling will also be conducted.

4. Reduce nutrient loads to Watson Lake by 5% (baseline = TMDL).	(FY19)	In Progress

Comments

Projects continue to be identified and awarded in the Granite Creek watershed. Effectiveness monitoring began by ADEQ and volunteers (Prescott Creeks, Prescott College, and others) in the Granite Creek watershed in September 2016 to aid in the determination of whether we are on track to meet this load reduction goal. Effectiveness monitoring of Whipple Street basin, Prescott Adult Center, Watson-Woods Riparian Corridor, and Prescott Rodeo Grounds has been re-invigorated with the addition of our Citizen Science Coordinator and a newly staffed Prescott Creeks Preservation Association.
Update - Further sampling is required to calculate load reductions. Prescott Creeks began sampling along Miller Creek above and below the planned restroom that has not been installed yet.

5. Set percent reduction goals for *E. coli* loads to Granite Creek.	(FY15)	In Progress

Comments

The Granite Creek TMDL was approved by EPA in Q4 2016. Load reductions will be calculated based on approved TMDL.

Responsible Parties: Grants & Outreach Program, TMDL & Assessments Program, NPS grantees, other programs as identified

Strategy ii: Implement **Oak Creek** WIP

Milestones:

1. Complete Implementation of Midgely Bridge project. (FY15) Complete

Comments

Implementation and final review of the Midgely Bridge project was completed in July 2014.

2. Complete Implementation of Oak Creek Ambassadors project. (FY16) Complete

Comments

The current Oak Creek Ambassadors grant was extended and will expire on August 31, 2016 to allow time to complete match. Water quality samples were collected throughout the contract period and were QA/Qc'ed by U of A staff.
Update - The Ambassadors worked with the USFS in Fossil Creek during FY17 and into FY18.

3. Identify projects to pursue funding. (Annually) Ongoing

Comments

This may be a good watershed to update the WIP to invoke new project ideas. In March 2017, ADEQ and U of A contracted with Environmental Canine Services to conduct K9 testing of Oak Creek Canyon to identify sources of human fecal matter to Oak Creek. Update - This watershed is the focus of Oak Creek/Verde Team to pinpoint future projects that make the biggest impact to impaired reaches.

4. Implement at least one project per grant cycle as funding and competitive project scoring allows. (See NPS Annual Report) In Progress

Comments

Update - The Cycle 18 project of Schnebly Hill Road was completed December 31, 2017. ADEQ received two applications from Oak Creek Watershed Council in Cycle 19, and neither were funded. OCWC was awarded a grant during Cycle 20 but cancelled the grant due the resignation of the executive director and staff reorganization.

5. *E. coli* loads to Oak Creek are reduced by 15% (baseline = TMDL). (FY19) In Progress

Comments

ADEQ is actively supporting implementation projects to reduce bacteria loading in the watershed. Oak Creek has been identified as an effectiveness monitoring focus watershed for FY18, at which point the overall impact of projects to date on bacteria loading will be assessed and documented.
Update - As a priority watershed, load reduction estimates will be a focus of the team to further develop in FY19.

Responsible Parties: Grants & Outreach Program, TMDL & Assessments Program, NPS grantees, other programs as identified

Strategy iii: Implement **San Pedro** WIP

Milestones

1. Begin implementation of San Pedro WIP projects. (FY15) Complete

Comments

WIP project implementation was initiated in the San Pedro in FY15. Future projects funded in this watershed during the current 5-year planning cycle will be reported under Milestone #3 of this strategy.

2. Identify projects to pursue funding. (Annually) Ongoing

Comments

Cycle 19 only had 1 application from the San Pedro watershed, the O'Donnell Stream Restoration project which was funded. Update - No San Pedro Watershed grants were funded under Cycle 20.

3. Implement at least one project per grant cycle as funding and competitive project scoring allows. (See NPS Annual Report) In Progress

Comments

Update - ADEQ awarded 1 grant in Cycle 19 in the San Pedro watershed and continues toward completion. Two of the three Cycle 18 San Pedro projects were closed during this reporting period.

4. Set reduction goals for *E. coli* loads to the San Pedro River. (FY15) In Progress

Comments

ADEQ has determined that more reach-specific TMDL values should be calculated to better quantify the load reduction needs from the various tributary and main stem reaches in the upper watershed. The San Pedro WIP update, which began in FY16 and continues into FY18, will include TMDL calculations.
Update - Further detailed reach work began at the end of FY 18 and will continue into the future state.

Responsible Parties: Grants & Outreach Program, TMDL & Assessments Program, NRCS, NPS grantees, other programs as identified

Strategy iv: Implement **San Francisco/Blue River** WIP

Milestones:

1.	Complete implementation of Clifton Restroom project.	(FY15)	Complete

Comments

The Clifton Restroom project was completed on 12/31/15

2.	Complete implementation of San Francisco River Restroom ~~and Menges Ranch projects.~~	(FY16)	Complete

Comments

The San Francisco Restroom project was completed on 12/31/15. The Menges Ranch project was discontinued at the request of the grantee prior to implementation. The Menges family did apply for and receive a grant in Cycle 19. Update - The Menges Ranch project continues to move forward on task implementation.

3.	Identify projects to pursue funding.	(Annually)	Ongoing

Comments

This would be a good watershed to expand the WIP in upcoming years. There was high turnover of the Gila Watershed Partnership during FY17, and they will hopefully be reinvigorated in FY18.

4.	Implement at least one project per grant cycle as funding and competitive project scoring allows.	(See NPS Annual Report)	In Progress

Comments

ADEQ awarded a Cycle 19 grant to improve cattle tanks and fencing on the Menges Ranch.
Update - This project moved forward in FY 18.
The Cycle 18 grant to the Gila Watershed Partnership group to construct low-impact erosion control structures in the uplands of subwatersheds to the San Francisco River was ongoing in FY17.
Update - This project scope of work was adjusted due to permitting issues. The GWP will now be implementing a vault and haul toilet along a highly recreated area along the San Francisco.

5.	*E. coli* loads to the San Francisco/Blue are reduced by 10% (baseline = 2010 IR data).	(FY19)	In Progress

Comments

ADEQ staff conducted pre-implementation monitoring for two restroom projects in the San Francisco/Blue watershed during FY15. Post-implementation data was collected in FY16 to determine progress toward meeting the 10% reduction goal. The Ambient Monitoring Unit included a sample site for their quarterly sampling. Update - A current grant involving riverside cleanups at recreation areas along the San Francisco River includes pre- and post-treatment water quality sampling. Data from ambient monitoring and this project will be analyzed in FY19.

Responsible Parties: Grants & Outreach Program, TMDL & Assessments Program, NPS grantees, other programs as identified

Strategy v: Implement projects in the **Little Colorado River** Headwaters Watershed

Milestones:

1. Using existing Upper Little Colorado River watershed plan, Natural Channel Design planning document and ADEQ project evaluations as prioritization tools, implement at least one project per grant cycle as funding and competitive project scoring allows.	(See NPS Annual Report)	In Progress

Comments

2 of the 4 landowners backed out of projects for personal reasons. The other projects were expanded in order to use some of the money that was lost for the projects that backed out. A landowner and Natural Channel Design applied for a Cycle 19 grant, which was awarded; however, the landowner is selling his property and backed out of the grant.
Update - Two grants were awarded in this watershed during Cycle 20.

2. Sediment loading into LCR from the Coyote Creek subwatershed is reduced by 21% (baseline = 2010 IR data).	(FY19)	In Progress

Comments

Effectiveness monitoring for the LCR Headwaters watershed began in spring 2015, and implementation activities are ongoing. Pre-implementation load reduction estimates for Cycle 15 projects in the LCR watershed indicate the potential to reduce as much as 20% of the annual sediment loading from Coyote Creek. Update - Awarded three projects in the LCR watershed Cycle 17, which are completed. Two projects were awarded in Cycle 20 and are progressing.

Responsible Parties: Grants & Outreach Program, TMDL & Assessments Program, NRCS, NPS grantees, other programs as identified

Strategy vi: Implement **Santa Cruz River** WIP

Milestones:

1. Release funding opportunity upon completion of watershed plan.	(FY18)	In Progress

Comments
Update - The development of the Santa Cruz River Clean Water Plan was completed and released to public comment on October 15, 2018. ADEQ is on track to release a funding opportunity for this watershed in FY18. A Cycle 20 grant was awarded to Borderlands LLC in this watershed.

2. Implement at least one project in support of the Santa Cruz watershed plan.*	(FY19)	Not Applicable

Comments
ADEQ is on track to begin implementing plan-supported projects in this watershed in FY18. Update - The development of the Santa Cruz River Clean Water plan is under public comment review until January 31, 2019.

**Note: Implementation in this watershed may begin prior to plan completion as "straight to implementation" projects are identified.*

Responsible Parties: Grants & Outreach Program, TMDL & Assessments Program, OBEP, NPS grantees, other programs as identified

Strategy vii: Implement portions of the Boulder Creek TMDL Implementation Plan pertaining to the lower tailings pile at the former Hillside Mine site.

Milestones

1. MOU between ADEQ, ASLD, and ADOA/State Risk detailing long-term commitments to the Hillside project is finalized.	(FY15)	Complete

Comments
ISA was completed at the beginning of FY15.

2. Implementation planning for project is completed and agreed upon by all involved parties.	(FY15)	Complete

Comments
EPA approved extension of grant monies. Project completed in May 2017.

3. Project implementation complete.	(FY16)	Complete

Comments

Project completed in May 2017.

4. Total zinc loads to Boulder Creek are reduced by 25%.	(FY18)	In Progress

Comments

Monitoring will occur quarterly in FY18 and be expanded to include an additional site downstream. The remediation of the LTP was completed in May 2017 and enforcement actions continue against the MTP owner. With the exception of arsenic, copper and zinc, all other metals (beryllium and manganese) and pH met applicable surface water quality standards in the post remediation samples below the UTP.
Update - Quarterly monitoring in FY18 was hampered by dry conditions and access issues resulting in only 2 successful events being completed. However, the limited data indicate that dissolved zinc concentrations now average 60 ug/L (2 samples collected in FY18) compared to 92 ug/L as described in the TMDL. This is a 36% reduction in dissolved zinc concentrations.

Responsible Parties: Grants & Outreach Program, TMDL & Assessments Program, ASLD, ADOA/State Risk, other partners as identified

Strategy viii: Implement projects in the Tonto/Christopher Creek watershed

Milestones

1. Implement at least one project per grant cycle as funding and competitive project scoring allows.	(See NPS Annual Report)	Not Initiated

Comments

Update - Tonto Creek was not identified as a targeted watershed for FY17 or FY18 funding cycles due to the lack of a developed implementation plan.

2. Document progress toward achieving required NPS load reductions to meet water quality standards.	(FY15)	Complete

Comments

Tonto Creek was delisted for Total Nitrogen and Christopher Creek was delisted for Total Phosphorus in the 2016 proposed Assessment.
Update - No additional work on Tonto Creek or Christopher Creek was completed in FY18

Responsible Parties: Grants & Outreach Program, TMDL & Assessments Program, USFS, NPS Grantees, other partners as identified

Objective b: Ensure that WQIG funding is invested in the projects that are most likely to provide long-term load reductions to achieve watershed-wide improvements.

Strategy i: Require that implementation grant proposals demonstrate:

- Connection to an approved watershed-based plan
- The estimated pollutant load reductions and how they relate to the reductions needed to meet water quality standards (if established in an approved plan)
- That the applicant has sufficient resources, technical skills, and commitments to implement the project and provide for long-term maintenance
- How education and outreach components will encourage water quality improvements, behavior changes, and citizen involvement
- How project success will be measured in both the short and long term

Milestones

1.	Revise grant materials to account for NPS guideline changes.	(FY15; as needed)	Complete

Comments

Revised scoring tool to better align with application to make scoring more streamlined. Cycle 20 application was revised so that it could be used for both Watershed Preservation and Water Quality Improvement grants.

2.	Conduct training on monitoring plan development.	(FY15, 16)	Complete

Comments

ADEQ hired a Citizen Science Coordinator that is responsible for working with all volunteers and grantees to develop an AMP/SAP. A template for a SAP/QAPP was developed and will be utilized in FY18. Grantees used the existing AMP in FY17.
Update - The template continues to be used in FY 18.

3.	Provide technical assistance to applicants for the development and implementation of projects.	(Annually)	In Progress

Comments

Staff provided ongoing technical assistance for current and potential WQIG projects in the form of BMP selection and design recommendations, training on visual and quantitative monitoring, budget and report assistance, and addressing general technical questions as they arose. The Citizen Science Coordinator will have more of a role in training and working with grantees and volunteers in FY18.
Update - Citizen Science Coordinator worked with Gila Watershed Partnership, Santa Cruz Watershed citizens, Butte Creek, and Prescott Creeks groups on a deeper level to talk through BMP purposes and locations.

4.	Plan, market, and oversee WQIG funding opportunities.	(Annually)	In Progress

Comments

WQIG Cycle 19 RFGA was released on 9/28/16 and was completed in March 2017. Cycle 20 Watershed Preservation and Water Quality Improvement Grants RFGA was released at the end of FY17.
Update - Seven projects were awarded during the Cycle 20 RFGA.

Responsible Parties: Grants & Outreach Unit, NPS grantees (e.g. University of Arizona), TMDL & Assessments Program

Strategy ii: Oversee WQIG projects and contracts to ensure that deliverables and timelines are met, and that anticipated outcomes are achieved.

Milestones

1. Review projects at least quarterly to ensure that timelines and deliverables are on track. Work with grantees and sub grantees as necessary to resolve issues as they arise and schedule site visits.	(Annually)	In Progress

Comments

Update - In FY18, project manager managed 14 projects with multiple BMP sites and reviewed monthly/quarterly reports for all projects. Site visits were conducted for all on-the-ground projects. Projects awarded during FY18 are listed in Appendix B.

2. Review, approve, and process reimbursement requests.	(Annually)	In Progress

Comments

Update - Staff reviewed reports and reimbursement requests for 14 projects over the course of FY18.

3. Conduct project close-out site visits to ensure that all work was completed and long-term management plans are in place.	(Annually)	In Progress

Comments

All on-the-ground WQIG projects that closed in FY17 received close-out site visits to confirm satisfactory project completion including Hillside Mine and a ribbon cutting for Horseshoe Draw completion with a site visit scheduled in early FY18.
Update - Two projects awarded during Cycle 19 received initial and periodic site visits. They will receive closure visits when completed as will the 7 projects awarded for Cycle 20.

Responsible Parties: Grants & Outreach Unit

Objective c: Implement projects to protect healthy surface and groundwater resources

Strategy i: Utilize prioritization scheme identified in Strategy 1.b.ii to rank waters for protection projects and implement protection projects.

Milestones:

1.	Release funding opportunity for protection projects.	(FY17)	Complete

Comments

ADEQ released the Cycle 20 RFGA for both Water Quality Improvement and Watershed Preservation grants on June 30, 2017.
Update - Projects are moving forward in FY18.

2.	Receive and award applications for protection projects.	(FY17)	Complete

Comments

2 Preservation Projects were awarded in Cycle 20, and ADEQ received more applications in Cycle 21

3.	No water bodies or reaches in protection-prioritized waters are moved to the 303(d) list for the 2018 assessment.	(FY18)	Not Applicable

Comments

No activity on this task was planned or completed for FY18.
Update - No 303(d) changes during the 2018 assessment cycle.

Responsible Parties: Grants & Outreach Program, other programs as identified for technical support purposes

GOAL #3: Coordinate efforts of various programs within ADEQ with other agencies and partners to prevent and reduce NPS pollution impacts to surface and groundwater.

Objective a: Utilize legal authorities to reduce NPS contributions to surface and groundwater.

Strategy i: Coordinate with internal Groundwater, Compliance, Source Water Protection and 401 programs and with delegated county authorities to ensure that permit reviews and inspections take potential nonpoint source contributions to surface water impairments into account, and to identify potential nonpoint source threats to drinking water sources.

Milestones:

1.	Update Groundwater, Compliance, Source Water Protection, and 401 Certification programs and delegated authorities on changes to NPS targeted watersheds.	(Annually/as needed)	In Progress

Comments

During FY18, Unit and Value Stream management staff initiated planning to re-focus more internal resources on solving problems in priority impaired watersheds. New priority impaired watersheds were established based on highest potential impact to human health. Beginning in FY19, the San Pedro, Verde/Oak Creek, and Bradshaw Mountains-area impairments will be prioritized, with watershed teams established to focus on source and project ID, stakeholder and partner engagement, and timely implementation of effective projects. This shift in program prioritization and structure was communicated to groundwater, compliance, drinking water, and other agency management staff during FY19 strategic planning meetings.

2. Evaluate potential for agricultural use pesticide active ingredients to reach/impact groundwater.	(Annually)	In Progress

Comments

Reviewed and approved 25 active ingredients, 11 of which were biopesticides or geopesticide waivers. Of the 25 approved active ingredients, two of the active ingredients were placed on the draft 2017 Groundwater Protection List (GWPL).
Presented an update on the state of the program to the Western Plant Health Association (WPHA) on May 4, 2017.
Update - Fourteen (14) active ingredients were approved from January 1 to June 30, 2018. Of the 14 active ingredients approved, two of them were waivers and two were placed on the Groundwater Protection List.

3. Publish the annual Groundwater Protection List (GWPL).	(Annually)	In Progress

Comments

The draft 2017 Groundwater Protection List was published in the Arizona Administrative Register on July 21, 2017 public comment.
Update - The annual Groundwater Protection List (GWPL) was published July 6, 2018 in the Arizona Register.

2. Conduct inspections of biosolids facilities to ensure that disposal and/or surface applications are not impacting surface/groundwater quality.	(Annually)	In Progress

Comments

Update - 17 biosolids facilities were inspected in FY18:

- Land Applicators or Composting biosolids: 6
- Generators: 11

Responsible Parties: APP Program, Groundwater Program, Source Water Protection Program, 401 Certification Program, Community Liaisons/other agency outreach staff

Strategy ii: Coordinate with state and federal partners to ensure that grazing permits and resource management plans, specifically in targeted watersheds, appropriately consider water quality concerns.

Milestones:

1. ADEQ is included in the development and review of Coordinated Resource Management Plans in priority watersheds.	(FY16)	In Progress

Comments

CRM has been revived as the Arizona Conservation Partnership. ADEQ has participated most strongly at the "Team Coordinator" level but also attended an "Executive Team" meeting to determine the appropriate level of participation.
Update - Participation continues through FY18.

Responsible Parties: Grants & Outreach Program, CRM Partners (including NRCS and ASLD), TMDL & Assessments Program

Objective b: Encourage public involvement in locally-driven efforts to improve and protect water quality.

Strategy i: Provide technical assistance, education, and training to empower watershed partners to develop and implement projects supported by watershed plans

Milestones:

1. Provide education and training opportunities on water quality topics of concern to watershed partners.	(As requested)	In Progress

Comments

ADEQ hired a Citizen Science Coordinator to expand volunteer participation in watersheds across the state. Over 100 people with ~~12~~ 25 (updated) different groups have been trained across 10 watersheds. Training has been provided to volunteers with the San Pedro Sierra Club, Prescott Creeks Preservation Association, Gila Watershed Partnership, Friends of Santa Cruz, Prescott College, Butte Creek Restoration, Verde River Institute, Rainbow Lake, Luna Lake, Friends of Tonto NF, Natural Channel Design/Rio de Flag, and Fossil Creek. ADEQ has also provided training to grantees on photo monitoring. ADEQ attended meetings to promote the WQIG and water quality sampling at the Arizona Conservation Partnership meetings, San Pedro Landowner Resource Partnership, Cross Watershed Network conference, Friends of Rainbow Lake meetings, and Santa Cruz River Days, among others. ADEQ also attended a groundbreaking and ribbon-cutting on two separate occasions at the Horseshoe Draw project site.
Update: Additional partnerships with entities like Arizona State Parks and Tonto National Forest have been forged to collect water quality data.

2. Conduct workshops in watersheds with completed watershed plans to encourage the implementation of high-priority projects.	(Annually)	In Progress

Comments
ADEQ held three webinars for Cycle 19 and attended meetings with active groups in targeted watersheds to promote both Cycle 19 and Cycle 20. Update- Additional webinars were conducted for Cycle 20 solicitations.

3. WQIG FAQ, alternative/match funding resources, and interactive map with links to project information are added to website to make program information readily accessible to the public.	(FY15)	In Progress

Comment
ADEQ had been undergoing LEAN training throughout FY17 and the website had been under development/changes so there was not a FAQ sheet to put up on the website. Update - ADEQ updated Preservation and Water Quality Improvement Grants on the ADEQ website.

Responsible Parties: Grants & Outreach Program, TMDL & Assessments Program, NPS grantees (e.g. University of Arizona), Community Liaisons/other agency outreach staff, Communications Office, Data Management Program

Strategy ii: Develop outreach strategies that identify direct benefits of project implementation beyond water quality improvements to stakeholders.

Milestones:

1. Coordinate with NRCS to produce outreach materials that highlight soil conservation, range health, and other potential secondary benefits of WQIG project implementation.	(FY15, 16)	In Progress

Comment
Staff held preliminary discussions with NRCS range conservationists and Agricultural Research Service hydrologists to develop outreach materials regarding specific, commonly used BMPs in the upper San Pedro River basin (low tech erosion control structures and brush treatments) in FY16. Update - No further progress was made internally on these fronts in FY17; however, NRCS and ARS staff made progress on the development of Conservation Practice guidelines for low tech erosion control measures.

2. Applications for WQIG funding are received from all eligible targeted watersheds.	(Annually)	In Progress

Comment

Applications for Cycle 19 were received from Oak Creek, Little Colorado River, Upper San Pedro, and San Francisco/Blue Rivers watersheds. No applications were received from Granite Creek watershed.
Update - Applications for Cycle 20 were received from Little Colorado River, Oak Creek, Santa Cruz, Tonto, and Granite Creek.

3. Applications for project leveraging Farm Bill funding to improve water quality are received from all NWQI watersheds.	(Annually)	In Progress

Comment

There was an application for Coyote Creek which was funded but later cancelled by grantee. The Horseshoe Draw sediment detention structure project was funded in an adjoining watershed to Greenbrush Draw. There were no projects in or near Spring Creek. ADEQ will work with local NRCS and NRCD staff to identify eligible projects in these areas.
Update - WQIG applications were not received for any of the NWQI watersheds. 2 WQIG projects were awarded in subwatersheds adjoining Road Tank (Running N Bar and Sands Borderlands). The Running N Bar project was cancelled after the grantee passed away.

Responsible Parties: Grants & Outreach Program, NRCS

Strategy iii: Train volunteer monitoring groups to collect credible data that can be used in ADEQ water quality assessments.

Milestones:

1. Partner with U of A to implement a startup volunteer monitoring support program.	(FY15, 16)	In Progress

Comment

ADEQ hired a Citizen Science Coordinator who has been working closely with U of A to develop user-friendly field forms and reference documents to train volunteers. ADEQ has also been working to make sure that all data received meets the credible data requirements to be used for the Assessment. ADEQ also purchased equipment for a loaner library and has begun deploying water quality sampling equipment to volunteer groups.
Update - Micro video lessons on how to measure flow and use a multi-parameter probe were created this year to supplement the citizen science handbook.

2. Develop training protocols that can be used throughout the state for volunteer monitoring groups.	(FY15)	Ongoing

Comment
ADEQ's Citizen Science Coordinator developed user-friendly field forms, E. coli processing mats, stream vital guides, an app, a website, a draft Guidebook, and a draft SAP/QAPP for volunteers to ensure data collected meets credible data requirements and can be used for the Assessment. ADEQ worked with U of A to ensure that training is consistent for the remainder of the grant with U of A. Update - The grant had a successful closing and ADEQ Citizen Science Coordinator is carrying out planned activities and trainings with groups across Arizona.

3. Hire internal staff to support and oversee volunteer monitoring.	(FY 17)	Complete

Comment
Update - Citizen Science Coordinator started in January 2017.

4. Targeted Watersheds have at least one active volunteer monitoring entity, where feasible. †	(FY 17)	In Progress

Comment
Update - There are active volunteer monitoring activities occurring in the Santa Cruz, San Pedro, Oak Creek, Granite Creek, and San Francisco/Blue River targeted watersheds, as well as in the Rainbow Lake, Luna Lake, Rio de Flag, Verde River, Gila River, Sonoita Creek, Little Colorado River, Aravaipa Canyon, and Fossil Creek watersheds.

5. Credible external data from priority watersheds is incorporated into the surface water quality database for use in future assessment reports.	(Annually)	In Progress

Comment
Data was collected by stakeholders in the Granite Creek, Oak Creek, Upper Santa Cruz River, and San Pedro River watersheds during FY17 for inclusion in ADEQ's water quality database. Update - In FY 18, there were 414 records entered in the database. Records are from Friends of the Forest, Gila Watershed Partnership, San Pedro Sentinels, Verde River Institute, Aravaipa, UAMAC Santa Cruz Yuma Rivers Team, Grand Canyon Project Area, and Friend of the Tonto.

**Note: Completion of this milestone is dependent on the availability of funding in future fiscal years.*

†Note: Factors that impact the practicality of volunteer monitoring may include type of monitoring required to track improvements and the proximity of local stakeholders to the project/monitoring sites.

Responsible Parties: Grants & Outreach Program, TMDL & Assessments Program, NPS grantees (e.g. University of Arizona), Community Liaisons/other agency outreach staff

Objective c: Encourage and work with land and resource management agencies, tribal authorities, bordering states and Mexico to identify and mitigate nonpoint source pollution impacts in Arizona.

Strategy i: Continue to strengthen relationships with other agencies, tribes, bordering states, and Mexico to encourage development of effective water quality improvement projects and avoid project practices that would contribute to impairment of surface or groundwater quality or degradation of protected watersheds.

Milestones:

1. Work with NRCS to develop and implement monitoring strategies for existing and new NWQI projects.	(Annually)	In Progress

Comments

ADEQ has been participating in the Arizona Conservation Partnership with other land management/natural resource agencies, including NRCS. In Coyote Creek - ADEQ established a strategy for and monitored vegetation and substrate cover on seeding and mulching efforts at three NWQI-WQIG funded projects (FY15) in the Coyote Creek watershed. ~~Staff established and collected baseline and post-implementation photographs at permanently established points~~. These projects, bank sloping and stock tank rehabilitation efforts, were largely funded by WQIG on the following ranches: Moore, SPO (Maddock), and Rogers' ranches.
Update - In Road Tank watershed - ADEQ conducted pre- and post-treatment (Yr 1) vegetation sampling and photomonitoring at permanently established plots on an NWQI-funded chemical brush treatment project (FY14) on the Three Brothers Ranch.
Update - NRCS has not shared EQIP projects for WPU staff to conduct BMP evaluations or effectiveness monitoring since FY16.

2. Memoranda of Understanding with agencies and tribes updated to better support this 5-year strategic plan. This list reflects planned MOU activities as of July 2014 and may be updated in the future.

a. Update USFS MOU to reflect new NPS program strategies and leverage partnership opportunities.	(FY15)	Complete

Comments

The USFS MOU update was finalized in October 2014. Existing goals outlined in the MOU were determined broad enough to cover NPS planning goals, and both parties agreed that specific annual goals were better suited to being determined at the annual MOU meetings.

b. Develop MOU with AZG&F to facilitate increased fish tissue and recreation area monitoring.	(FY16)	Complete

Comments

ADEQ and AZG&F staff met to discuss how to best coordinate monitoring activities in 2015. Both agencies determined that in lieu of a formal MOU, a coordination meeting would be held annually with informal contact throughout the year.

c. Coordinate with ASLD to develop an MOU that facilitates the use of NPS funds to implement projects on State Lands.	(FY19)	In Progress

Comments

Update - No activity on this task was planned or completed for FY18.

3. ADEQ participation in coordinating resource planning efforts of federal and state agencies (e.g. planning, federal action reviews).	(Annually)	In Progress

Comments

The Water Quality Division participated in 7 environmental reviews during FY17.
Update - Staff actively participated in the resource planning efforts of the Arizona Conservation Partnership, which included sharing GIS data.

4. Participation in meetings with binational stakeholders regarding issues and remedies to water quality impairments in shared watersheds across the US/Mexico border including the targeted Santa Cruz and San Pedro watersheds.	(Annually)	In Progress

Comments

Staff continued working on border issues in the Santa Cruz and San Pedro watersheds. Specific activities are described in detail in the FY16 4th Quarter Output Report, submitted to EPA on 9/9/16, under Task 5.5.5 (pg 123).
Update - In 2018, staff worked with the Nogales, Sonora Potable Water and Wastewater Utility on an EPA Border 2020 project focused on source characterization of metals in binational wastewater that is treated and discharged to the Santa Cruz River in Arizona. Source industrial parks were identified and results were presented at the third quarter meetings of the Southeast Arizona Citizens Forum Board (SEACFB) and Binational Technical Committee Meetings hosted by the International Boundary and Water Commission. Report recommendations were adopted as action items by the SEACFB.

Responsible Parties: Grants & Outreach Program, TMDL & Assessments Program, OBEP, NRCS, USFS, AZG&F, ASLD, WQD Director's Office, APP Program, Community Liaisons/other agency outreach staff, Administrative Counsel

GOAL #4: Evaluate and improve the effectiveness of the NPS program and communicate successes.

Objective a: Evaluate WQIGs and TMDL implementation activities to determine effectiveness toward achieving water quality standards.

Strategy i: Conduct effectiveness monitoring and BMP evaluations in watersheds prioritized on ADEQ's Master Target List (MTL), including NWQI waters.

Milestones:

1.	MTL monitoring and evaluation priorities identified for each fiscal year.	(See Work Plan)	In Progress

Comments

In FY17 38 targeted waters were sampled with 27 showing improvement; 71% showing improvement. In FY18 ADEQ will begin tracking progress toward completely delisting Targeted Waters from the 303(d) list or removing them from Category 4. This metric is titled "Number of Impaired Surface Waters". Where the "Number of Targeted Waters Improved" is pollutant based, the "Number of Impaired Surface Waters" is reduced when a waterbody is meeting all surface water quality standards.
Update - The "Number of Targeted Waters Improved" metric has been replaced by the "Number of Net Pollutant Impairments in Surface Waters", starting in state FY19. ADEQ monitored 42 MTL waters in FY18 with 27 showing improvement (64%).

2.	Site visits, evaluations, monitoring and/or modeling conducted for projects in work plan identified MTL waters.	(Annually)	In Progress

Comments

Samples were collected from 10 targeted MTL waters including watershed group efforts in the Granite Creek, Upper San Pedro, and Upper Santa Cruz watersheds. Project site visits and/or BMP evaluations were conducted in all but Turkey, Tonto, and Christopher creeks, where there are no active projects.
Update - Data was collected on 8 MTL waters in the Oak Creek, Upper Santa Cruz and Upper San Pedro watersheds in FY18.

3.	10% of MTL waters monitored on an annual basis show improvements to water quality (50% of all monitored waters over 5-year time frame).	(Annually)	In Progress

Comments

In FY17 this metric was changed to tracking the "Number of Target Waters Improved". 27 out of 38 (71%) Target Waters showed improvement in FY17.
Update- ADEQ monitored 42 MTL waters in FY18 with 27 showing improvement (64%).

4. Coordinate with NRCS to develop a monitoring plan for ADEQ assistance in NWQI watersheds.	(FY15)	Complete

Comments

Sampling and analysis plans have been completed for the LCR Headwaters and San Pedro River watersheds. These include monitoring both CWQ 319 and NWQI funded projects. These plans may be updated in the future as additional projects from both funding sources are awarded.

5. Coordinate with NRCS to conduct effectiveness monitoring in the Coyote Creek watershed and other NWQI watersheds as identified in state FY work plans.	(Annually)	In Progress

Comments

Watershed Protection Unit staff met with local NRCS staff and contractors in the San Pedro and LCR watersheds throughout FY16 to collaborate on Cycle 15 and Cycle 17 projects involving multiple locations and landowners. The partnering of NPS and NWQI projects has been profitable for the environment since the partnerships allow funding to be stretched over more projects or cover more areas for on-the-ground restoration work.
Update - Although we have not had a NWQI and 319 nexus in FY18 projects, we will continue to seek out collaborative project efforts in FY19.

Responsible Parties: Grants & Outreach Program, TMDL & Assessments Program, other programs/monitoring staff as identified

Strategy ii: Increase staff capacity to recommend, design, and evaluate the effectiveness of BMPs.

Milestones:

1. Provide BMP training to staff.	(Annually)	In Progress

Comments

Staff participated in the following trainings in FY17 to improve capacity to recommend, design, and evaluate the effectiveness of BMPs:

- WASP Modeling Training - Atlanta (July 2016)
- Geomorphology Training (October 2016)
- eBee UAV demo (August 2016)

- Arduino FONA Training (October 2016)
- Border Brush Management Tour - Sendero chemical treatment (October 2016)

Update:

- Line-point intercept vegetation and substrate sampling (September 2016, September 2017, January 2018)
- Database for Inventory, Monitoring, and Assessment (DIMA; January 2018)
- Total Station Surveying (August 2017)
- Brush Management Workshops (3; December 2017, February and April 2018)

2.	Hire staff with expertise in BMP design and evaluation.	(FY15)	Complete

Comments

The Watershed Protection Unit hired a BMP Effectiveness Coordinator, Ron Tiller, in October of 2014.

3.	Develop updated BMP guidance for WQIG applicants based on effectiveness monitoring.	(FY19)	In Progress

Comments

Staff established monitoring protocols for sediment basin BMP evaluations and collected baseline and post-treatment data. Subsequent years data will be used to develop BMP guidance since effects on recent treatments are only now starting to manifest themselves. In the interim, staff are working with retired NRCS staffer to develop guidance for evaluating site potential for brush treatment BMPs.

Update - Staff established monitoring protocols for photomonitoring brush treatment, low tech erosion control techniques

Responsible Parties: Grants & Outreach Program, TMDL & Assessments Program, NPS grantees, other contractors as identified

Objective b: Document and communicate program successes and lessons learned.

Strategy i: Report to EPA and the public on NPS program success

Milestones:

1.	Report annually on NPS 5-year Plan progress.	(Annually)	In Progress

Comments

Update- The FY18 Nonpoint Source Annual Report was submitted to EPA in January 2019.

2. Report on state fiscal year work plan progress.	(Semi-annually)	In Progress

Comments

The FY17 Final Output Report was submitted to EPA on September 6, 2017. The FY18 Midyear Workplan Report was submitted on February 13, 2018. The FY18 4th Quarter Final Output Report was submitted to EPA on September 4, 2018 and is a deliverable of the FY18 workplan.

3. Develop success stories to document de-listings (WQ-10) as well as documentation of interim progress toward restoration (SP-12) in accordance with EPA requirements. (Minimum 2 stories and/or documentations of progress per year). In addition, progress summaries for non WQ-10 or SP-12 watersheds may be identified on an annual basis.	(See Work Plan)	In Progress

Comments

1. EPA released success stories for Mule Gulch and the Middle Gilas in December 2016.
2. ADEQ submitted documentation for Tonto and Boulder Creek. Tonto will be updated in FY18, once delist is approved by EPA. Boulder Creek will be early FY19.

Update - Tonto Creek was not updated in FY18, but a success story is in draft form during FY18.

4. Report to EPA on effectiveness of NWQI implementation activities.	(Annually/as requ. by EPA)	Not applicable

Comments

No NWQI effectiveness reporting was due during FY17. Update - No reporting was submitted during FY18.

5. Report mandated elements for all projects in GRTS, including load reduction estimates as applicable.	(Annually)	In Progress

Comments

Update - GRTS load allocations and mandated elements were updated prior to the February 2018 deadline.

Responsible Parties: Grants & Outreach Unit Program, TMDL & Assessments Program, NRCS, other programs as identified

Objective c: Update NPS Plan as needed

Strategy i: Update plan as needed to reflect shifting priorities as they occur over the current planning horizon and to re-frame goals for the next 5-year planning horizon.

Milestones:

1.	NPS Plan is evaluated for update needs.	(Annually)	In Progress
	Comments		
	Update - No major updates to the plan occurred during FY18.		
2.	Updates, if required, are submitted to EPA and a review and approval schedule is established.	(As needed)	Not applicable
	Comments		
	No major updates to the plan occurred during FY17.		
3.	Initial FY20-25 5-year NPS Plan draft plan submitted to EPA.	(FY18)	In progress
	Comments		
	Update - Per discussions with EPA, ADEQ staff will coordinate with Region 9 staff to produce a draft 5 year plan during state FY19.		
4.	FY20-25 5-year NPS Plan approved by EPA.	(FY19)	Not applicable
	Comments		
	No activity was planned or occurred during FY17.		

Responsible Parties: Grants & Outreach Program, other programs as identified, EPA Region 9

Appendix A: Master Target List

The Master Target List consists of 99 waterbody/pollutant combinations. Listings marked with ~~strikethrough text~~ have been delisted as of 6/31/18/.

	Name	Impairment	Description
1	~~Colorado River~~	~~Selenium~~	~~Lake Powell- Paria River~~
2	Boulder Creek	Arsenic	Wilder Creek - Butte Creek
3	Boulder Creek	Copper	Wilder Creek - Butte Creek
4	Boulder Creek	Zinc	Wilder Creek - Butte Creek
5	Boulder Creek	Beryllium	Wilder Creek - Butte Creek
6	Boulder Creek	Manganese	Wilder Creek - Butte Creek
7	Boulder Creek	low pH	Wilder Creek - Butte Creek
8	Boulder Creek	Arsenic	Butte Creek- Copper Creek
9	Coyote Creek		New Mexico Border - LCR
10	Little Colorado River	Turbidity	Nutrioso Creek - Carnero Creek
11	Little Colorado River	Turbidity	Water Canyon - Nutrioso Creek
12	Little Colorado River	Turbidity	West Fork LCR - Water Canyon
13	Little Colorado River	Turbidity	Coyote Creek - Lyman Lake
14	Rainbow Lake	Low DO	
15	Rainbow Lake	high pH	
16	Rainbow Lake	Nutrients	
17	Big Bug Creek	Suspected Metals	Eugene Gulch- Agua Fria River
18	~~Painted Rock Barrow Pit~~	~~Pesticides~~	-
19	~~Painted Rock Reservoir~~	~~Pesticides~~	-
20	~~Gila River~~	~~Pesticides~~	~~Gillespie Dam - Rainbow Wash~~
21	~~Gila River~~	~~Pesticides~~	~~Sand Tank - Painted Rock Reservoir~~
22	~~Gila River~~	~~Pesticides~~	~~Rainbow Wash - Sand Tank~~
23	~~Gila River~~	~~Pesticides~~	~~Salt River - Agua Fria River~~
24	~~Gila River~~	~~Pesticides~~	~~Agua Fria River - Waterman Wash~~
25	~~Gila River~~	~~Pesticides~~	~~Centennial Wash - Gillespie Dam~~
26	Gila River	Selenium	Centennial Wash - Gillespie Dam
27	Gila River	Boron	Centennial Wash - Gillespie Dam
28	~~Gila River~~	~~Pesticides~~	~~Hassaympa River - Centennial Wash~~
29	~~Gila River~~	~~Pesticides~~	~~Waterman Wash - Hassayampa River~~
30	~~Hassayampa River~~	~~Pesticides~~	~~Buckeye Canal - Gila River~~
31	~~Salt River~~	~~Pesticides~~	~~23rd Ave WWTP - Gila River~~
32	Turkey Creek	Copper	Tributary 341928/1122128 - Poland Creek
33	Turkey Creek	Lead	Tributary 341928/1122128 - Poland Creek
34	Alum Gulch	Cadmium	Headwaters - 312820 / 1104351
35	Alum Gulch	Copper	Headwaters - 312820 / 1104351
36	Alum Gulch	Low pH	Headwaters - 312820 / 1104351
37	Alum Gulch	Zinc	Headwaters - 312820 / 1104351
38	Alum Gulch	Cadmium	312917/1104425 - Sonoita Creek
39	Alum Gulch	Copper	312917/1104425 - Sonoita Creek
40	Alum Gulch	Low pH	312917/1104425 - Sonoita Creek

41	Alum Gulch	Zinc	312917/1104425 - Sonoita Creek
42	Alum Gulch	Cadmium	312820/1104351 - 312917/1104425
43	Alum Gulch	Copper	312820/1104351 - 312917/1104425
44	Alum Gulch	Low pH	312820/1104351 - 312917/1104425
45	Alum Gulch	Zinc	312820/1104351 - 312917/1104425
46	Humboldt Canyon	Cadmium	Headwaters - Alum Gulch
47	Humboldt Canyon	Copper	Headwaters - Alum Gulch
48	Humboldt Canyon	Low pH	Headwaters - Alum Gulch
49	Humboldt Canyon	Zinc	Headwaters - Alum Gulch
50	Pena Blanca Lake	Mercury	
51	Potrero Creek	Chlorine	Interstate 19 - Santa Cruz River
52	Potrero Creek	Low dissolved oxygen	Interstate 19 - Santa Cruz River
53	Potrero Creek	*E. coli*	Interstate 19 - Santa Cruz River
54	~~Santa Cruz River~~	~~Ammonia~~	~~Roger Road WWTP outfall - Intermittent Reach~~
55	~~Santa Cruz River~~	~~Copper (dissolved)~~	~~HUC 15050303 Boundary - Baum~~
56	Santa Cruz River	Ammonia	Josephine Canyon - Tubac Bridge
57	Santa Cruz River	*E. coli*	Josephine Canyon - Tubac Bridge
58	Santa Cruz River	Ammonia	Canada del Oro - HUC 15050303
59	~~Santa Cruz River~~	~~Chlorine~~	~~Nogales WWTP - Josephine Canyon~~
60	~~Santa Cruz River~~	~~Ammonia~~	~~Nogales WWTP - Josephine Canyon~~
61	Santa Cruz River	*E. coli*	Nogales WWTP - Josephine Canyon
62	Santa Cruz River	*E. coli*	Tubac – Sapori Wash
63	Mule Gulch	Copper (dissolved)	Lavender Pit - Bisbee WWTP discharge
64	~~Mule Gulch~~	~~low pH~~	~~Lavender Pit - Bisbee WWTP discharge~~
65	Mule Gulch	Copper (dissolved)	Headwaters - Lavender Pit
66	Mule Gulch	Copper (dissolved)	Bisbee WWTP Discharge - Highway 80 bridge
67	~~Mule Gulch~~	~~Cadmium (dissolved)~~	~~Bisbee WWTP Discharge - Highway 80 bridge~~
68	~~Mule Gulch~~	~~Zinc (dissolved)~~	~~Bisbee WWTP Discharge - Highway 80 bridge~~
69	~~Mule Gulch~~	~~Low pH~~	~~Bisbee WWTP Discharge - Highway 80 bridge~~
70	Brewery Gulch	Copper (dissolved)	Headwaters to Mule Gulch
71	San Pedro River	*E. coli*	Babocomari River - Dragoon Wash
72	San Pedro River	*E. coli*	Charleston - Babocomari
73	San Pedro River	*E. coli*	Border - Charleston
74	~~Christopher Creek~~	~~Phosphorus~~	~~Headwaters - Tonto Creek~~
75	Christopher Creek	*E. coli*	Headwaters - Tonto Creek
76	~~Christopher Creek~~	~~Nitrogen~~	~~Headwaters - Tonto Creek~~
77	Five Point Mountain Tributary	Copper (dissolved)	Headwaters To Pinto Creek
78	Gibson Mine Tributary	Copper (dissolved)	Headwaters To Pinto Creek
79	Pinto Creek	Copper (dissolved)	West Fork Pinto Creek - Roosevelt Lake
80	Pinto Creek	Copper (dissolved)	Headwaters - Tributary at 331927/1105456
81	Pinto Creek	Copper (dissolved)	Trib at 331927/1105456 - West Fork Pinto Creek
82	~~Tonto Creek~~	~~Low dissolved oxygen~~	~~Headwaters - Tributary at 34180/1110414~~

83	~~Tonto Creek~~	~~Nutrients~~	~~Headwaters - Tributary at 34180/1110414~~
84	Tonto Creek	*E. coli*	Headwaters - Tributary at 34180/1110414
85	~~Tonto Creek~~	~~Nutrients~~	~~Tributary at 341810/1110414 - Haigler Creek~~
86	Tonto Creek	*E. coli*	Tributary at 341810/1110414 - Haigler Creek
87	Blue River	*E. coli*	Strayhorse Creek - San Francisco River
88	Gila River	*E. coli*	Skully Creek - San Francisco River
89	Gila River	*E. coli*	Apache Creek - Skully Creek
90	Gila River	*E. coli*	New Mexico border - Bitter Creek
92	Gila River	SSC	New Mexico border - Bitter Creek
93	Gila River	*E. coli*	Bonita Creek - Yuma Wash
94	Gila River	SSC	Bonita Creek - Yuma Wash
95	Gila River	Lead (total)	Bonita Creek - Yuma Wash
96	San Francisco River	*E. coli*	Limestone Gulch - Gila River
97	San Francisco River	*E. coli*	Blue River - Limestone Gulch
98	~~East Verde~~	~~Boron~~	~~American Gulch- Verde River~~
99	Granite Creek	Low dissolved oxygen	Headwaters - YPIT boundary
100	Granite Creek	*E. coli*	YPIT to Watson Lake
101	Granite Creek	*E. coli*	Headwaters – YPIT boundary
102	Miller Creek	*E. coli*	Headwaters to Granite Creek
103	Butte Creek	*E. coli*	Headwaters to Miller Creek
104	Manzanita Creek	*E. coli*	Headwaters to Granite Creek
105	Oak Creek	*E. coli*	West Fork Oak Creek - Trib at 345709/1114513
106	Oak Creek	*E. coli*	Headwaters - W. Fork Oak Creek
107	Oak Creek	*E. coli*	Slide Rock SP - Dry Creek
108	Oak Creek	*E. coli*	Trib at 345709/1114513 - Slide Rock SP
109	Oak Creek	*E. coli*	Dry Creek - Spring Creek
110	Spring Creek	*E. coli*	Coffee Creek - Oak Creek
111	Watson Lake	Nitrogen	
112	Watson Lake	Low dissolved oxygen	
113	Watson Lake	High pH	
114	3R Canyon	Headwaters to Unnamed Trib	Cadmium (dissolved)
115	3R Canyon	Headwaters to Unnamed Trib	Copper (dissolved)
116	3R Canyon	Headwaters to Unnamed Trib	Zinc (dissolved)
117	3R Canyon	Headwaters to Unnamed Trib	pH
118	3R Canyon	Below Uppermost Spring	Beryllium (dissolved)
119	3R Canyon	Below Uppermost Spring	Cadmium (dissolved)
120	3R Canyon	Below Uppermost Spring	Copper (dissolved)
121	3R Canyon	Below Uppermost Spring	pH
122	3R Canyon	Below Uppermost Spring	Zinc (dissolved)
123	3R Canyon	Below Cox Gulch	Beryllium (dissolved)
124	3R Canyon	Below Cox Gulch	Cadmium (dissolved)
125	3R Canyon	Below Cox Gulch	Copper (dissolved)

126	3R Canyon	Below Cox Gulch	pH
127	3R Canyon	Below Cox Gulch	Zinc (dissolved)

Appendix B: WQIG Projects Awarded in FY18

Watershed	WQIG#	Project Title	Grantee	NPS Funded Amount	Project Start Date
Gila	20-001	Miller Creek Public Restroom	Prescott Creek Preservation Association	$119,140.89	9/29/2017
Salt River	20-002 Preservation	Sierra Ancha Trails Erosion Control and Drainage Improvement	National Forest Foundation	$120,000.00	9/27/2017
Santa Cruz	20-003 Preservation	Youth-led Erosion Control and E. coli Mitigation in Nogales Wash and Santa Cruz Watersheds	Borderlands Restoration	$135,000.00	9/28/2017
Santa Cruz	20-004 Preservation	Sediment Reduction through Brush Management in Altar Valley	Altar Valley Conservation Alliance	$228,200.00	11/30/2017
Verde	20-006	Buckhorn Water Enhancement	M Diamond Management LLC	$71,364.00	10/31/2017
Little Colorado River	20-007	Rogers/Lee Ranch Streambank Treatment for Sediment Reduction	Knight Environmental	$36,973.00	9/27/2017
Little Colorado River	20-008	Knight Ranch Sediment Basins Rehabilitation	Knight Environmental	$188,911.00	9/27/2017

TOTAL Awarded in FY18: $899,588.89